

DEC 08 2008

*Application Serial No. 10/590,383  
Response to Office Action of July 14, 2008*

**IN THE CLAIMS:**

*This listing of claims will replace all prior versions, and listings, of claims:*

Claims 8-23 (canceled)

Claim 24 (currently amended): An expander comprising:

a cylinder,

a shaft having an eccentric portion,

a roller which is fitted to said eccentric portion and which eccentrically rotates inside said cylinder,

a closing member for closing both end surfaces of said cylinder,

a vane for partitioning a space formed by said cylinder, said roller and said closing member into two working chambers,

a suction hole through which working fluid flows into said working chamber, and

a single discharge hole through which the working fluid is discharged from said working chamber into a discharge space,

wherein said single discharge hole is provided with a differential pressure regulating valve which is operated by a difference between pressure in said working chamber and pressure in said discharge space; and

wherein said differential pressure regulating valve is closed when the expansion stroke is completed, and said differential pressure regulating valve is ~~opened~~ open when the discharge stroke is completed.

Claim 25 (previously presented): The expander according to claim 24, wherein said differential pressure regulating valve is closed when the pressure in said working chamber is lower than the pressure in said discharge space.

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Claim 26 (previously presented): The expander according to claim 25, wherein said differential pressure regulating valve is a reed valve.

Claim 27 (previously presented): The expander according to claim 25, wherein said differential pressure regulating valve has a circular conical valve portion.

Claim 28 (previously presented): The expander according to claim 24, wherein fluid which expands from liquid phase or supercritical phase to gas-liquid two-phase is used as the working fluid.

Claim 29 (previously presented): The expander according to claim 28, wherein the expander is utilized in a heat pump cycle which uses carbon dioxide as the working fluid.

Claim 30 (previously presented): The expander according to claim 29, wherein a shaft of said expander is directly connected to a shaft of a compressor.

Claim 31 (previously presented): The expander according to claim 25, wherein fluid which expands from liquid phase or supercritical phase to gas-liquid two-phase is used as the working fluid.

Claim 32 (previously presented): The expander according to claim 26, wherein fluid which expands from liquid phase or supercritical phase to gas-liquid two-phase is used as the working fluid.

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Claim 33 (previously presented): The expander according to claim 27, wherein fluid which expands from liquid phase or supercritical phase to gas-liquid two-phase is used as the working fluid.

Claim 34 (previously presented): The expander according to claim 31, wherein the expander is utilized in a heat pump cycle which uses carbon dioxide as the working fluid.

Claim 35 (previously presented): The expander according to claim 32, wherein the expander is utilized in a heat pump cycle which uses carbon dioxide as the working fluid.

Claim 36 (previously presented): The expander according to claim 33, wherein the expander is utilized in a heat pump cycle which uses carbon dioxide as the working fluid.

Claim 37 (previously presented): The expander according to claim 34, wherein a shaft of said expander is directly connected to a shaft of a compressor.

Claim 38 (previously presented): The expander according to claim 35, wherein a shaft of said expander is directly connected to a shaft of a compressor.

Claim 39 (previously presented): The expander according to claim 36, wherein a shaft of said expander is directly connected to a shaft of a compressor.